WHAT IS CLAIMED IS:

1. A method for identifying a compound active on a biologically active STAAU_R9 polypeptide comprising the amino acid sequence of SEQ ID NO: 6, or a biologically active variant thereof, wherein said polypeptide specifically binds to a bacteriophage polypeptide sequence, said method comprising:

contacting said STAAU_R9 polypeptide with a candidate compound, and

detecting one of: a binding of said compound to said STAAU_R9 polypeptide; and a biological activity thereof, wherein said binding of the compound to said STAAU_R9 polypeptide or a decrease in said biological activity thereof in the presence of said candidate compound relative to same in the absence thereof, is indicative that said candidate compound is a compound that is active on the STAAU_R9 polypeptide.

2. The method of claim 1, wherein said STAAU_R9 polypeptide is contacted simultaneously with said bacteriophage polypeptide sequence.

3. The method of claim 1 or 2, wherein said binding or said decrease in biological activity is performed in the presence and absence of said candidate compound.

4. The method of one of claims 1 to 3, wherein said bacteriophage polypeptide sequence is selected from the group consisting of:

a) SEQ ID NO:4; and

b) a fragment or variant of a) that specifically binds with SEQ ID NO:6.

5. The method of one of claims 1 to 4, wherein said detecting comprises measuring the binding of a candidate compound to said STAAU_R9 polypeptide, wherein the compound is directly or indirectly detectably labeled.

6. A method for identifying a compound active on one of a STAAU_R9 polypeptide and a bacteriophage polypeptide which specifically interacts with same comprising:

contacting said STAAU_R9 polypeptide which comprises the amino acid sequence of SEQ ID NO: 6, or variant thereof, and said bacteriophage polypeptide which is selected from the group consisting of:

a) SEQ ID NO:4; and

b) a fragment or variant of a), wherein said fragment or variant of a) maintains its biological activity;

with a candidate compound; and

detecting a biological activity of said STAAU_R9 polypeptide and/or said bacteriophage polypeptide, wherein a decrease in the biological activity thereof in the presence of the candidate compound is indicative that said candidate compound is a compound that is active on one of said STAAU_R9 and/or bacteriophage polypeptide.

7. The method of claim 6, which identifies a compound active on STAAU_R9.

8. The method of claim 6 or 7, wherein said detecting comprises the act of measuring the binding of said STAAU_R9 polypeptide to said bacteriophage polypeptide wherein said STAAU_R9 polypeptide or said bacteriophage polypeptide is directly or indirectly detectably labeled.

9. A method of identifying a compound that is active on a biologically active STAAU_R9 polypeptide, said method comprising:

contacting a candidate compound with cells expressing said STAAU_R9 polypeptide comprising the amino acids of SEQ ID NO: 6, or a biologically active fragment thereof capable of binding specifically to a bacteriophage polypeptide sequence, and

detecting a STAAU_R9 activity in said cells,

wherein a decrease in said activity in said cells in the presence of said candidate compound is indicative of an inhibition of STAAU_R9 activity by said compound.

10. An agonist or an antagonist of the activity of a STAAU_R9 polypeptide or fragment thereof, or a nucleic acid encoding said polypeptide or fragment thereof, identified with any one of the methods of claims 1 to 9.

11. The method of any one of claims 1-8, wherein said detecting comprises measurement by time-resolved fluorescence resonance energy transfer (TR-FRET).

12. The method of any one of claims 1-8, wherein said detecting comprises measurement of fluorescence polarization changes.

13. The method of any one of claims 1-8, wherein said detecting comprises measurement by surface plasmon resonance.

14. The method of any one of claims 1-8, wherein said detecting comprises a scintillation proximity assay.

15. The method of any one of claims 1-8, wherein said detecting comprises a biosensor assay.

16. The method of any one of claims 1-8, wherein said detecting comprises measurement by phage display.

17. A method of making an antibacterial compound, comprising:

identifying a compound active on a polypeptide comprising the amino acid sequence selected from:

a) SEQ ID NO:2;

b) a biologically active fragment or variant of a) capable of binding specifically to a bacteriophage polypeptide sequence;

c) SEQ ID NO:6; and

d) a biologically active variant of c) or fragment thereof capable of binding specifically to a bacteriophage polypeptide sequence; and

e) a nucleic acid encoding any of said polypeptide of a) – d), wherein said polypeptide is capable of binding specifically to a bacteriophage polypeptide sequence; and

synthesizing or purifying said active compound in an amount sufficient to provide a therapeutic effect when administered to an organism infected by a bacterium naturally producing said polypeptide, or nucleic acid encoding same.

18. A method for inhibiting a bacterium, comprising contacting the bacterium with a compound active on one of a) a *S. aureus* polypeptide comprising the amino acid sequence of SEQ ID NO: 2, fragment or variant thereof; b) a *S. aureus* polypeptide comprising the amino acid sequence of SEQ ID NO: 6, fragment or variant thereof; and c) a nucleic acid encoding the polypeptide of a) or b), wherein said fragment or variant retains its biological activity in binding to a bacteriophage ORF.

19. A method for treating or preventing a bacterial infection in an animal suffering from an infection or at risk of suffering therefrom, comprising administering to said animal a therapeutically effective or prophylactic effective

amount of a compound active on a *S. aureus* polypeptide comprising the amino acid sequence of one of a) SEQ ID NO: 2, fragment or variant thereof; b) SEQ ID NO: 6 fragment or variant thereof; c) a nucleic acid encoding said amino acid sequence of a) or b), wherein said fragment or variant retains its biological activity in binding to a bacteriophage ORF.

20. A method of prophylactic treatment to prevent bacterial infection comprising contacting an indwelling device with a compound active on a *S. aureus* polypeptide comprising the amino acid sequence of SEQ ID NO: 6, capable of binding to a bacteriophage ORF, before its implantation into a mammal, such contacting being sufficient to prevent *S. aureus* infection at the site of implantation.

21. A method of prophylactic treatment to prevent infection of an animal by a bacterium comprising administering to the animal a compound that is active on a *S. aureus* polypeptide comprising one of the amino acid sequence of SEQ ID NO: 2, fragment or variant thereof; SEQ ID NO: 6, fragment or variant thereof; or a gene encoding said polypeptide, wherein same is capable of specifically interacting with a bacteriophage polypeptide, in an amount sufficient to reduce adhesion of the bacterium to a tissue surface of a tissue of the mammal.

22. The method of any one of claims 1-9, or 11-21, wherein said active compound is selected from the group consisting of a small molecule, a peptidomimetic compound, and a fragment or derivative of a bacteriophage inhibitor protein.

23. The method of any one of claims 1-9, or 11-21, wherein said active compound is a peptide synthesized by an expression system and purified, or is artificially synthesized.

24. The method of claim 23, wherein said compound is selected from the group consisting of:

a) SEQ ID NO:4; and

b) a fragment or variant of a), wherein said fragment or variant thereof maintains its specific binding capability of interacting with one of SEQ ID NO:2, SEQ ID NO: 6, fragment or variant thereof.

25. The method of any one of claims 18, 20, 22, 23 or 24, wherein said contacting is performed *in vitro*.

26. The method of any one of claims 18, 19, 21-23 or 24, wherein said contacting is performed *in vivo* in an animal.

27. The method of any one of claims 18-26, wherein said contacting is performed in combination with existing antimicrobial agents.

28. The method of any one of claims 1-9, 10, 11-16, or 22-24, wherein said STAAU_R9 polypeptide comprises the amino acid sequence as set forth in SEQ ID NO:2, or biologically active fragment or variant thereof.

29. A composition comprising an isolated, purified or enriched bacteriophage 96 ORF 78-encoded polypeptide; and a *S. aureus* STAAU_R9 polypeptide comprising the amino acid sequence seth forth in SEQ ID NO: 6, fragment or variant thereof, which retains its biological activity in binding to said bacteriophage ORF.

30. A composition comprising a pair of specifically interacting domains, said pair comprising: a STAAU_R9 polypeptide and a polypeptide encoded by a bacteriophage ORF which specifically interacts with said

STAAU_R9 polypeptide, wherein at least one of said interacting domains is isolated, purified or enriched.

31. The composition of claim 30, wherein said STAAU_R9 polypeptide comprises the amino acid sequence set forth in SEQ ID NO:6, and wherein said bacteriophage ORF comprises the amino acid sequence as set forth in SEQ ID NO:4.

32. The composition of claim 30 or 31, wherein said STAAU_R9 polypeptide comprises the amino acid sequence set forth in SEQ ID NO:2 or biologically active fragment or variant thereof.

33. A process for producing a pharmaceutical composition comprising: a) identifying a compound that is active on a STAAU_R9 polypeptide by performing a screening assay for compounds active on a polypeptide comprising the amino acid sequence of SEQ ID NO:6, or biologically active fragment or variant thereof, that binds specifically with a second polypeptide derived from a bacteriophage ORF; and b) mixing the compound identified in a) with a suitable pharmaceutical carrier.

34. The process of claim 33, wherein said bacteriophage ORF comprises the amino acid sequence as set forth in SEQ ID NO:4.

35. The process of claim 33 or 34, wherein said STAAU_R9 polypeptide comprises the amino acid sequence as set forth in SEQ ID NO:2 or biologically active fragment or variant thereof.

36. Use of one of: a) a STAAU_R9 polypeptide comprising the amino acid sequence of SEQ ID NO:2, a biologically active fragment or variant thereof; wherein said STAAU_R9 polypeptide is capable of binding specifically to

a polypeptide derived from a bacteriophage ORF;b) a STAAU_R9 polypeptide comprising the amino acid sequence of SEQ ID NO:6, a biologically active fragment or variant thereof, wherein said STAAU_R9 polypeptide is capable of binding specifically to a polypeptide derived from a bacteriophage ORF, c) a composition comprising a pair of specifically interacting domains comprised of a polypeptide of STAAU_R9, biologically active fragment thereof or variant thereof and a polypeptide encoded by a bacteriophage ORF which specifically interacts with STAAU_R9; or d) an assay mixture comprising a first polypeptide which comprises one of i) the amino acid sequence of SEQ ID NO:2, ii) the amino acid sequence of SEQ ID NO:6, or iii) a biologically active fragment or variant of i) or ii); and a second polypeptide encoded by a bacteriophage ORF which specifically interacts with one of i)-iii); for the identification of a compound that is active on a STAAU_R9 polypeptide.

37. The method of any one of claims 17-19, 21, 24 or 28, wherein said biologically active fragment or variant of SEQ ID NO:2 comprises an amino acid sequence of SEQ ID NO:2 mutagenized in the portion which is absent in SEQ ID NO:6.

38. The composition of claim 32, wherein said biologically active fragment or variant of SEQ ID NO:2 comprises an amino acid sequence of SEQ ID NO:2 mutagenized in the portion which is absent in SEQ ID NO:6.

39. The process of claim 35, wherein said biologically active fragment or variant of SEQ ID NO:2 comprises an amino acid sequence of SEQ ID NO:2 mutagenized in the portion which is absent in SEQ ID NO:6.

40. An isolated polypeptide comprising the amino acid sequence as set forth in one of:

a) 1-599 of SEQ ID NO:2;

b) 35-599 of SEQ ID NO:2;
c) 229-599 of SEQ ID NO:2;
d) 380-599 of SEQ ID NO:2;
e) 449-599 of SEQ ID NO:2;
f) 490-599 of SEQ ID NO:2;
g) 530-599 of SEQ ID NO:2;
h) 561-599 of SEQ ID NO:2; and
i) a biologically active variant of a) to h);

to screen and identify antibacterial compounds.

41. The isolated polypeptide of claim 40, wherein said amino acid sequence is as set forth in SEQ ID NO:6.

42. An isolated polypeptide consisting of the amino acid sequence as set forth in one of:

a) 1-599 of SEQ ID NO:2;
b) 35-599 of SEQ ID NO:2;
c) 229-599 of SEQ ID NO:2;
d) 380-599 of SEQ ID NO:2;
e) 449-599 of SEQ ID NO:2;
f) 490-599 of SEQ ID NO:2;
g) 530-599 of SEQ ID NO:2;
h) 561-599 of SEQ ID NO:2; and
i) a biologically active variant of a) to h);

to screen and identify antibacterial compounds.

43. The isolated polypeptide of claim 42, wherein said amino acid sequence is as set forth in SEQ ID NO:6.

44. An isolated nucleic acid sequence encoding the amino acid sequence of claim 40, 41, 42 or 43.

45. An isolated, purified or enriched antibody specific for an isolated polypeptide of claim 40, 41, 42, 43 or 44.

46. The antibody of claim 45, specific for a polypeptide of SEQ ID NO:6.

47. The method of claim 23, wherein said expression system is cell-based.